Deviant logic: Part 1: The Law of Noncontradiction

Graham Priest

Then — too — be comprehended —
What sorer — puzzled me —
Why Heaven did not break away —
And tumble — Blue — on me —

—Emily Dickinson

(No one under 18, please. I am not responsible for the disruption the suspicions generated here may cause in your life.)

The 10th Century Persian philosopher Avicenna (Ibn Sina) took a dim view of those who messed with one of the founding laws of Western logic:

> Anyone who denies the law of non-contradiction should be beaten and burned until he admits that to be beaten is not the same as not to be beaten, and to be burned is not the same as not to be burned.
>
> —*Metaphysics*, commenting on Aristotle's *Topics*.

We’ll risk it... People have strong feelings about their logic.

Plato wrote, “The great Parmenides from beginning to end testified . . . ’Never shall this be proved - that things that are not are.’” (Plato, *Sophist*, 237A) But Heraclitus had previously denied this, asking how can change happen if things in what they are do not also contain what they are not?[1] There is no single river to set foot in twice.

Like sex, logic, too, can get pretty kinky. Logic did not begin with Aristotle nor end with Russell, Frege, and Gödel. Nor has it been confined to the West. We will explore the possibility that the logic in which we are steeped, logic as we know it, is, to say the least, overrated and maybe misguided—even *misguiding*—if it is taken, as it often is, as the foundation of rationality.[2] It is remarkable that once we learn a bit of logic we think we can think no wrong—if careful, that care alone will save us from error. But thinking “inside the box” of logic is no assurance you are doing much real thinking at all...

We promise not to get too technical. (Children may read this.) In fact, we won’t need to, for the most part—which in itself is pretty striking. Trouble rears its head at an elementary level, you don’t need to be a whizz to see it. We are going to ask a few simple questions about some basic laws of logic (just two or three) and poke at them. Not too complicated rules, starting with the *Law of Noncontradiction*—the one that says one and the same statement cannot be true and false at once.[3]

But first, why is this important?

Because logic, rock solid or not, is one of the three intrinsically *normative* subjects—the other two being ethics and aesthetics. These together pretend to guide how we think, how we act, and what we spend time appreciating or not appreciating whatever when we are not thinking or acting too hard. In other words, between the three, they set the boundaries of what is permissible, commendable, forbidden (on pain of being dismissed from the community of the “rational”) and required. Sometimes, in their normative capacity, however, they may subvert those boundaries

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1 Heraclitus here was playing the part we may recognize as empiricist, where Parmenides saw empirical objects as poor models of truth. Now fast forward to our naturalist times with its empirical proclivities, and you would think the naturalist would be on the same side as the Heraclitean deconstructor of logic(?) Whether opposites can inhere in the same thing should be a matter for science to decide, not logic. Right? “The Identity of Opposites entail a denial of the *Law of Non-Contradiction*” IEP on Heraclitus.

2 If we segregate “logic” and the wider concept of “rationality,” much of what I will say below will lose it’s punch. But, in that case, the concept of what it means to be rational will be even more contentious for different reasons. If logic doesn’t anchor it, what will? Beyond rationality, there remains a still wider concept of “common sensibility” which is barely distinguishable from culturally inflected mental etiquette—more the wind in the sails of thought than its anchor.

3In Part 2, a topic for another meetup, we’ll squint hard at another such “law,” the one that says a statement must be *either* true *or* not true, that is to say, it cannot avoid being one or the other: it most certainly can’t be neither—the so-called *Law of Excluded Middle*.

when they become too unbearable. Aesthetics, for one, puts up rules for target practice. Their value consists in the creativity inspired in breaking them. Logic, ethics, and aesthetics have a sorting function that makes everything else in experience tractable. Logical, ethical and aesthetic normativities are three distinct species of rationally guiding force. Distinct, but related in interesting ways.

Logic presents itself as the least flexible, even at times, to some thinkers, as so inflexible as to suffer no revision. Ethics is made nervous by flexibility, concerned as it is with not letting us get too crazy, while aesthetics revels in it. But logic is the arbiter of the rules for thinking *for all of the rest of philosophy*. It pretends to tell us when we *are* crazy! That's some responsibility! There are tension and interesting dynamics between these normativities. But we will focus for now on the one form of normativity you might think you could depend on when your world threatens to collapse around you. Surely no rule could be more basic and necessary to effective thought and communication of meaning than...

The Law of Noncontradiction[4]

It insists, for instance, that

"it can't *be* raining and *not be* raining at one and the same place at one and the same time."
or
"that one *is* guilty and *not* guilty of one and the same crime is impossible."

As laws go, what could be plainer than that? I can't be a batchelor *and* not be one, right? Or more briefly and generally, where p is any proposition:

The conjunction "p and not-p" cannot be true.

This law is *not supposed to be* controversial, but, like everything in philosophy, saying any such thing is begging to make it so.

We are quite invested in this law of logic. There is a widely used and understood argument pattern called *reductio ad absurdum* (or just *reductio*, for short) that trades on the fact we accept that contradictions are absolutely unacceptable. So unacceptable that if we want to show an opponent's claim false all we need to do is to infer a contradiction, a manifest absurdity, that relies solely on the truth of their claim plus any premises all parties agree are above reproach and the very basic inference rules of logic. If we succeed, we have made their claim look so laughable that they are obliged to drop to their knees and grovel for mercy as they look upon us with awe. So what would happen to this indirect way of stating your case—which amounts to showing the other guy is full of it—if we were to soften our convictions concerning the impossibility of a statement being *both* true *and* false?

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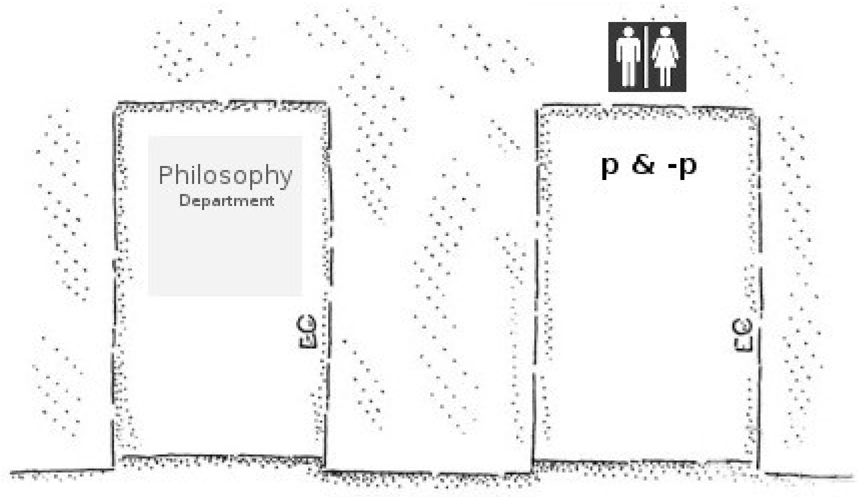
[4] Aka, "the law of contradiction." It seems even the names it goes by are contradictory.

If you have ever taken a logic course, it must have struck you as a little strange to learn early in the course (and probably for the first time) that from the truth of a contradiction, that is, from a statement that *two conjuncts that say opposite things are true at once*, such as

p and not-p

it follows that you are made of cheese, that your mother is also your father, that two plus two is whatever you feel like, and that whatever your name is it is not that… Even that two plus *really* is four follows from the truth of a contradiction. *Anything and everything stateable as a proposition follows from the truth of a contradiction.* How intuitive is that? Are we mental cripples for not having suspected this before? Wasn't logic supposed to steer us clear of saying stupid things? But our system of logic, the classical Western understanding of the subject, was rigged to produce just this result! Why?



Here is a proof or, perhaps, illustration of what happens when we toy with a *true non-contradiction* (in case you think I am making this up).

Suppose a proposition is true, call it "p." And that there is a very basic logical relation called disjunction, or "or", as in "you can have salad *or* soup with your sandwich." ("Or" in its most basic logical sense only rules out "neither" but not that "both" may be options. This is called "inclusive disjunction." If you mean to say "one or the other but *not* both" then you are saying something slightly more complex called "exclusive disjunction." It makes no difference to the following argument which is meant, however. It is enough that both kinds of disjunction exclude neither.)

Ok, now, suppose it is true that you can have a salad, call this true proposition “p.” Well if you can have a salad then it is true that you can have a salad *or* something else, call it “q.” Why? Because a disjunction, an “or” statement, which only claims that *one side or the other of a disjunction is true* is satisfied if only one side (disjunct) or the other is, in fact, true. In other words, if it is true “I can have ice cream” then it is also true that “I can have ice cream OR cake.” *The whole disjunctive proposition is still true.* (Notice, I *didn’t* say “ice cream *and* cake.” That, of course, would not necessarily follow.) In fact, this a basic inference rule of logic: that if “p” is true (whatever p is) then the entire statement “p or q” is true, no matter what “p” and “q” stand for. “q” could even be false for all the difference it makes. So long as “p” is true and there to hold the fort of truth down, all is well. “q,” its truth status, whatever it is, is superfluous. So, the proof goes like this (each step is true and in parentheses it is explained with mind-numbing precision why):

1. p and not-p

(Suppose this contradiction is true. The “and,” by well-established definition, insists its conjuncts are each true. This is the contradiction we are starting out with. We are *entertaining* the notion that the contradiction might be true to see what—according to relatively uncontroversial rules of logic—happens. We are setting out to prove something from it—something very strange.)

2. p

(If a conjunction is true then its conjuncts are true. If “John and Mary are both dead,” well then “John is dead.” He doesn’t need her to be dead to be dead himself. This p was inferred from the truth of 1 above.)

3. p or q

(But, if p is true, then p or q, whatever “q” is, is true, too. This whole “or” statement is true because of the inference rule we discussed above.[5] Remember: the disjunct we pull out of the air, the q, doesn’t have to be true; it’s enough for p to be true for the whole “or” statement to be true. And we know p to be true from step 2. The whole disjunctive statement: *“John is dead” or something or other—(you name it)* is true.)

But we are supposing that *p*—in *addition* to being true—is also *not* true as it says in step 1. That’s what a contradiction is or what it would mean to state one: for one and the same statement to be *both* true and not true. Hence:

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[5] The rule is sometimes called, for what it’s worth, *disjunction introduction*.

4. not-p

(...is true. It is true that p isn't true. We are just extracting this thought from the conjunction. It says there "p" just ain't so—nevermind, for now, that it also says it *is* so.)

Here we pause to explain another pretty obvious logical inference rule: suppose you know for a fact that your missing keys are either in your apartment or in your car (you've ruled out other possibilities), but you don't know which. So you check your car and become absolutely certain they are not there. So by a process of elimination, you now know where they must be, right?: they must be in your apartment. So, now apply this reasoning to steps 3 and 4, and you get:

5. q

(You know q must be true because look at step 3 and 4 above: step 3 says that either p or q is true, and step 4 says it definitely isn't p, so then it *must be* that q is true.[6])

QED: *Remember—we said q could be anything?* In the world *outside logic* q can be false, true, doesn't matter, plug in whatever statement you want q to stand for—whatever it is, it's true. Your mother is also your father—true!, two plus two is 42—true!, in fact the sum of any two numbers is 42—true!, Columbus discovered Mars 42 times, 42 is unequal to 42, you name it… it's true! We just proved it!

Here the argument is again in summary form:

1. p and not-p (assumption)
2. p (from 1.)
3. p or q (disjunction introduction on 2.)
4. not-p (from 1.)
5. ∴ q (disjunctive syllogism on 3. and 4.)

In case you thought the universe was lonely for true statements, their population just skyrocketed. Voila! An *explosive* result! Yes, "explosion" is the technical term for the cosmic promiscuity resulting when we entertain a true contradiction: truth forthwith consorts with any statement that happens along. And it seems to follow from indubitable, extremely simple logical moves.

Note that the law of noncontradiction is described as a *fundamental law of thought*—at least in classical, Western logic. You would think that the implications of something so basic would be crystal clear. Why exactly are such apparently absurd things (as well as non-absurd things) *allowed to* follow from saying that two contradictory statements are both true? What is this supposed to signify?

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[6] The name of the rule here is *disjunctive syllogism* or *disjunctive elimination*, but again, it's not important… except to say, that after this exercise, some may have suspicions about this "tried and true" rule.

Is saying a true contradiction may behave in such an off-the-scale kinky way really only a roundabout way of saying that contradictions are so unacceptable they are ridiculous? By saying they imply that I am made of cheese, are we really saying in a graphic way that a BIG, absolutely irremediable, even laughable, mistake is being made to assert such a thing as a contradiction? We do this because we want to insist emphatically that such thinking is beyond the pale, right?

Roundabout? But this is logic, not rhetoric! Logic is not supposed to insinuate or strike poses! Not for nothing is this called "explosion" by logicians. Assert a contradiction is true and all hell breaks loose. Really? Such a hysterical reaction over a bit of foolishness? Isn't logic supposed to be above such histrionics?

But in reacting with such an unqualified NO! (disgust even) to contradictory assertions are we being careless, preemptively barring the imagination from considering how we might actually live with and even have intimate dealings with contradictory thinking. In being so intolerant, are we being logically prudish? Are we trying to *reform* thought—or are we *describing* it? Which is it? If the former, we especially are owed an explanation—not just any explanation, not wild gestures, but a logical explanation.[7] And, if the latter, we had best cultivate more patience than is common.

A first response is that classical logic—just the way it is—works fine for day to day purposes. Newton's Laws do that, too, for the everyday physics that keeps bridges from falling down—nevermind, they are not the last word on their subject matter. And, yes, we know that there are special fields in which the law of contradiction and related ones are not treated with great respect, for example, in specialized areas (where people know how to play with fire) such as quantum mechanics, AI research, mathematical logics, and others. But we are not here interested in discussing logical etiquette in those areas. Though we can ask, if they have special permission to play with fire, why not the rest of us? Is it because we are too young or inexperienced to fully appreciate what we are doing? And who is to say we don't do it anyway, permission or not?

Logic is commonly seen as the infrastructure of rationality. If our logic is off, *and* if it's true, as many of us have been taught, that logic underwrites our credibility and sanity, then we are in trouble just trying to talk sense to ourselves and each other.

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[7] ...since respect for these laws is so often associated with central tracks in analytic philosophy. Today, that would mean the *naturalistic* track in analytical philosophy. Naturalism takes some pride in calling things as they *are* not as they *should* be—the latter a very much more freighted and difficult to defend way to predicate.

More philosophically interesting than whether they have shown themselves useful or not is the extent of the purported *generality* of such laws. How can anyone include such principles in “the laws of thought,” i.e., rational thinking, *without qualification* and not be seriously mistaken. But how can there even be a *qualification* in a “basic law of thought”?

It is one thing to call something a rule of thumb or a heuristic. It is another to call it a law. No one needs to deny that often to attempt to hold firm to contradictory thoughts is a pretty wasteful and hopeless exercise. Or that sometimes it is just not important enough to expend the effort to get clear one way or another about it. Without getting too persnickety or too much into the problem of vagueness, we know that you cannot both be bald and not bald at the same time. (Or do we? How many hairs have to be missing before you count as bald?) Not much hangs on how you feel about the possibility of being both at once. If you insist it is possible, good for you, but I can be excused for ignoring you.

But is it possible to both be morally guilty and not guilty of a crime? In love with someone and not in love with them? Wish to die and live at once? Can we act as though we believe in things and act as though we don’t believe in them *in the very same act?* And vice versa? Can we court clarity and relish confusion at the same time? May we feel attracted to and repelled from one and the same thing or person? Do we not play fast and loose with inherently contradictory notions like forgiveness, fidelity, gratitude, etc. yet place great store by them, both as individuals and in our public lives?[8] And so on…

We may read a diary entry from when we were twelve and feel both identity with and non-identity with the writer. We may feel both that we *are and are not* the same person who wrote those things. And the squirmy feeling is not a mistake. Because in the most important sense of what it means to say who we are, we may insist that we can be contradictory things: *not* first one then another, *not* in one sense yes and in another sense no, but in *the same sense both*: hence the tension, the discomfiture.

Certainly we may avail ourselves of some logical story to aid sound sleep and steady confidence. But remember: where is it written in logical or natural stone that the framework of our thinking is solid? Whence the assurance? Or was logic invented for that very purpose? To offer assurances? Isn’t it odd that we accept the assurances with such ease, offered or not? Is that a coincidence? I mean that we are an entity with a need for assurance and that logic, our invention, is so accommodating?

The thing is: we can’t use the rules of logic to prove the rules of logic. They are either given as evolved facts about the world we inhabit, the one our minds inhabit, at least—or we have forgotten when exactly it was we pulled just this set from among the many possible sets of inference rules to live by. When it is they, in particular, became *ahistorical*. Here I am using them to explain them.

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[8] The concept of “forgiveness,” specifically, is in line for analytical and deconstructive target practice. With the help of Jacque Derrida, I have in mind dragging that idea into court and presenting incriminating evidence of logical criminality…. A future topic.

To the extent human phenomenal experience is comprised of episodes of experienced contradiction and to the extent rational thinking is defined by its reliance on rigidity in its most basic laws, and to the extent rationality is unable to handle experienced contradiction—to that extent what is called "rational thinking" is in perpetual siege by the lived experience of those who claim rationality as one of their virtues.

Asked if I believe in God, must I be joking if I respond that I do *both* or that I do *neither*? Suppose that I answer that I do not believe in God and that I do not *not* believe in God either?

Where is the pressure to take a side coming from? I am asking!

Is some purported "law" of logic trying to back me against a wall and am I supposed to take this lying down? Just where in nature is it written that I will go to logical hell if I deny the law of contradiction? (What would logical hell be like, anyway? Just like this that surrounds me now?)

It will be noted that although the argument for explosion is valid, it *can't* be used to prove anything because, though *valid* (it doesn't violate the rules of logic), it is not *sound* (all of its premises can never be true, namely that first one), so we can rest well knowing that not anything goes after all.

But whether the premises are true or not true is a matter of investigation, phenomenal or empirical. Right? The truth value of the premises, be what it may, is *not* a logical matter if some of those premises purport to describe the world outside logic. If you are saying reality *must* comport with our logic, you are saying something quite radical. Go ahead and say it, important thinkers have agreed with you, but know you are sticking your neck out and daring experience to decapitate you.

"In a sense this and in a sense that…"

Juliet asked Romeo no less than three times if he loved her. What was up with her? When he was alive, what evidence was she looking for that she didn't already have? He *did* end up killing himself for her. When she woke to find him dead self-poisoned from grief at her apparent death, she had evidence as good as it gets that he did, the evidence, that is, but no longer him. Still what could possibly have laid her doubts to rest *while he was alive*? She was troubled by two things, or *rather one*, the possibility of a contradiction: that he may actually have loved her and that he might not have. Both were "live options" in her "he loved me, he loved me not" situation. More interestingly, what is being enquired into here is something that *even he*, Romeo, may not have known!—such is the vagary of first person questions of conviction. Juliet's situation is characteristically human: in the dark about these things. Necessarily so and not happy about it. You would think Romeo was epistemically privileged with regard to his own love-state. But first person judgments of conviction on any matter where the stakes are perceived to be this high are epistemologically intractable and often perceived as contradictory, and statements about them as contradictions. His—no less than her—ignorance was agonizingly necessary.

She loves me...
she loves me not.
She loves me *and* she loves me not.

The possibility of experiencing contradiction—a necessary conflict—is a sign of not being dead or, in a more than trivial sense, of being conscious.

Is it phenomenally possible that Romeo did love her and that he didn't but used the occasion to kill himself for some other reason? (Low self-esteem, after Rosaline had spurned him, and now the last straw: Juliet shows herself preferring death than being with him?) And suppose he *did* love her unconditionally *and* suppose he *did* have other reasons? So that his death was, as philosophers of science are wont to say, "overdetermined"? But can the concept of true romantic love harbor the thought that there may be *other* reasons? Is it possible as Bernard Williams once said that one may have "one thought too many"? So that in a sense Romeo *did* love Juliet and in a sense he *did not?* And that each sense might be true at one and the same time about one and the same state of mind of one and the same person?

But if it is always possible to skirt contradictions by speaking of "in a sense this" and "in a sense that," and so forth, then contradictions never happen—let alone are they experienced as false! Their survival is at the mercy of your ingenuity at explaining them away.

Do we *really* love our parents? Do we *really* love our children? I mean *unconditionally*, since the concept of love requires nothing less for its *highest* expression. Anything less just won't cut it.

Do you *really* care about the environment? Do you *really* believe Smith's "invisible hand" will, in the full scheme of things, effect the best for society as a whole and everyone it, that is, if everyone just pursues their self-interest? Do you *really* believe that humans as we know them can really subsume their self-interest and come to see their ultimate nobility in solidarity with "a species being" as Marx believed?[9] (To the extent there is even the slightest tremor of doubt in a given consciousness about these and things like these, to that extent they are undermined.)

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[9] One of these days I am going to write an essay on the difference between a question and the same question with a "really" inserted.

Is there no difference between what you really believe and what you appear to believe? The capacity to see this difference is an essential part of consciousness.

If you cannot experience contradiction, a case could be made you are not conscious.

So then when logic, the fundament of rationality, fails to keep pace with phenomenal consciousness, logic suffers from a loss of authority.

But suppose our logic fine, that the way we conceive our experience, as it happens, is simply faulty and cries out for reform. You are just overcome with conflicting emotions in reading that old diary. If Romeo is having questions about his love for Juliet or Hamlet about whether to be or not to, those contexts are simply not ones in which verifiable true (or false) statements can be made. Romeo and Juliet were both young and stupid. Hamlet, maybe a tad bi-polar. Neither was an example of anything we might learn from. There are no contradictory thoughts to somehow make cohere here. No proper statements that say opposite things that could form contradictions. No challenge to rational thought by classical standards…

“Alone together” versus “together alone”

Former President (and perhaps future “First Gentleman”) Bill Clinton also dabbled in philosophy of language. He was once asked very publicly if he had been with a certain young woman in a room with no one else around. He was asked precisely whether he was “together alone with her.”[10] He replied “I don’t recall...,” though he admitted at a later point that he had been “alone together with her.”[11] Was he contradicting himself? No. Like any consummate logician, he drew distinctions where distinctions needed to be drawn: there is a *difference* between being *alone together* and being *together alone*. Get it? Compare the difference between how a young couple deeply in love with each other might describe it when only they and no one else was around and how a couple in a much longer but less than happily committed relationship might describe being in exactly the same surroundings. The young lovers may well say they are *together* alone, while the second couple may say rather that are *alone* together. The stress and priority of the predicates make all the difference.

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[10] “At any time were you and Monica Lewinsky *together alone* in the Oval Office?” [emphasis added] Clinton replied after a long pause that he couldn’t recall. It is important to note that while Clinton gave inconsistent testimony on whether he had ever had “sexual relations” with Lewinsky, he never wavered (nor has he ever since) on the claim that he had an extramarital affair with Lewinsky. He said repeatedly and emphatically that he did not:

> *Q:* Did you have an extramarital sexual affair with Monica Lewinsky?
>
> *Clinton:* No.
>
> *Q:* If she told someone that she had a sexual affair with you beginning in November of 1995, would that be a lie?
>
> *Clinton:* It’s certainly not the truth. It would not be the truth. . . . I have never had sexual relations with Monica Lewinsky. I’ve never had an affair with her.

But in later court testimony Clinton acknowledged “’inappropriate intimate contact’ with Ms. Lewinsky on numerous occasions.” That’s as close to admitting that he had sex under some definition of “sexual relations” as he ever got. But under no definition of “affair” did he concede that he had *one of those* with Ms Lewinsky.

[11] That is, after his long time secretary Betty Currie testified that Clinton and Lewinsky were in the same room with no one else around. Though Clinton had pointedly asked Currie, “We [he and Lewinsky] were never alone, right?” By admitting the he and Lewinsky *may* have been “alone together” he could later insist they were never “together alone.” The suggestion being that, at least in Clinton’s mind, there *was* a difference. One sense he was sure about, the other he admits to the possibility of being wrong about. Hence, Bill Clinton never actually contradicted himself. *The point here is there is always a way to disavow contradiction where there’s a will. Distinctions were invented for this very purpose.* Up against sex, logic and its purported contradictions don’t stand a chance.

In other words, people divide on whether they would rather

1. turn casuist and start making up senses of *conditional* love (conditional this and the other) hedged with ifs, ands, and buts, or indulge "fifty shades" talk and the like... Or whether,

2. they are willing to gesture at a transcendental, manifestly non-empirical, but nevertheless phenomenal notion, and more or less concede that our ideas are bigger than we can ever hope to be—*and no less significant for that*.

Perhaps we smell a rat when people try to embrace contradiction. We think they are trying to have it both ways and we all know you can't have your cake and eat it too (and that rats like to do both). So we insist that move, that is, embracing contradiction, is not allowed or condoned. To claim it is is not a respectable answer to a question.

Besides, we are reminded, there is an orthodox way out: "I don't know" is an ok answer. Right? (Agnostics, for example, sometimes plead ignorance. But since when is ignorance of the law an excuse?) Why is "I don't know" considered acceptable in some cases, and barely or not at all in others? Because it invites someone *who does know* to enlighten you, while, in contrast, embracing (or denying) a contradiction kind of leaves your interrogator without any strategy but to roll their eyes or consign you to quack status. ("I don't care" may not be as polite as "I don't know" but, at least, it doesn't invite advice.) Agnostics succumb too easily to marginalization. They need a little more backbone. When they say "I don't know" it should sound like you must be an idiot to think you do know!

Certainly, the law of contradiction may survive this analysis by gracefully accepting demotion to the status of a rule on a par with driving on the right side of the road, as a regulation with more of an *ad hoc* character than we may have been led to believe. We need to hold to some rule or other about which side of the road to drive on for reasons than are not rocket science to figure out. If that is the extent of its function, nothing said here militates against it. But too often we hear it invoked as a summary argument stopper. Most of the time it may be perfectly sensible, if not quite logical, that it stop arguments, but not always. Besides, as we shall see later,[12] a

[12] See Addendum below.

contradiction may not be a dead end… and that thought is anathema to classical logic. Else, why the hysteria about an explosion of truths in the universe? If all we want to do is deprecate contradictions, we need not invoke disaster on such a Biblical scale. Nature does an adequate job of teaching us to avoid contradictions. Is there a difference between being burned and not being burned? When I was kid, I had to check this out for myself. I stuck my finger in a flame. Yes, there is, I learned.

But is my experience *universal*? That, it turns out, is not so easy to check out.

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If Western Classical logic had not canonized the law of contradiction, hell would likely still be contained. How? We'll look at possibilities, focusing on some of the work of a leading international authority on extant logics, contemporary philosopher, Graham Priest. We will learn about paraconsistent logics and dialetheism. A paraconsistent logic is a logic that takes into account that there are dialetheias, statements that are both true and false. Such a logic allows for the possibility that there are such "impossible" things. Such a logic may better explain large swathes of experienced reality than the logic we are used to.

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https://en.wikipedia.org/wiki/Dialetheism
http://plato.stanford.edu/entries/logic-paraconsistent/

In Part 2 of this series on logic, we will attack another canon of Western rationality, the *law of excluded middle*: that every proposition must be either true or false. Once again my focus will not be so much on logical puzzle as on existential consequences. Also, in Part 3, we will squint at the *law of identity*—we'll suggest "things might not be recognizable to themselves." And finally, while we are on a logical roll, the *law of transitivity*, too, will get a run for its money: A might be better than B, and B might be better than C, but A might *not* be better than C.

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Victor Muñoz

Addendum: classical and paraconsistent logic, mano a mano on vague and borderline cases

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Beyond the normal theoretical interest philosophers have in why things are the way are—in this case, why the LNC—a particular, often unquestioned, "law of thought"—has gripped so many for so long, there are also some practical reasons to ask why. The grip of this law has not always been healthy.

Anomalies usually first present themselves with inconsistent data:[13] we are or have been led to expect certain things but quite different things confront us and leave us stymied.

A class of cases where thinking exclusively inside the LNC box has been particularly unhelpful might be represented by this example from biomedicine:

Encephalopathies are diseases which include "mad cow," kuru, Huntington's, and Alzheimer's. This class of diseases was recognized as infectious for a long time before there was much understanding of the agent of causation. Infectious diseases generally had been understood as the result of *living* microbes such as viruses,[14] bacteria, fungi and parasites. Early studies of encephalopathies found no evidence of the presence of these infectious agents. Instead, they found something "like" a living thing in that it could replicate itself but "not like" a living thing in that it did not communicate with its environment the way “living things” do when they replicate. Whatever the agent was, it fit part of the bill of what infectious agents were known to be but clearly not other parts. Initially, it seemed like a ghost agent, something that could cause proteins to deform while leaving no (conventional) trace of the process. The thing, whatever it was, seemed alive and not alive at once. Francis Crick used the expression “contradiction” to describe an early report that suggested that proteins could transmit information to other proteins without the involvement of nucleic acids (DNA and RNA). It was, to him, a “contradiction” because he saw no other way. There was in the conceptual schemes of the time no other way to characterize what was causing these voids in neural tissue with eventual devastating consequences.

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[13] It should be needless to say here, but perhaps not, that the *first* rational response to inconsistent data is error. In this discussion, we are always assuming steps have been taken to account for that. But there are limits to the amount of error we can tolerate. When evidence abounds that we are in error. We should not forget that repeated error may not be error at all, but a harbinger of truly new information. An old logician's joke runs: one person's *reductio* is another's *modus ponens*. Classical, LNC logic is conspicuously intolerant of this possibility.

[14] Though viruses were only controversially classified as "living." They were about to be upstaged by something even more controversial.

Instead, there was an established understanding of what an infectious agent was. At the very least, it was a living thing like us: it consumed resources from its environment, excreted waste, and reproduced via nucleic acid transmission. In 1982, Stanley B. Prusiner announced he had found a protein—a large organic chemical compound—he called a “prion” (from “proteinaceous” and “infectious”), which could deform itself and actually cause or induce normal proteins in its environment to do the same. The previously mysterious “infectious agent” behind these diseases could do some, but not all, of the defining things living things could. (Philosophically, an “agent” is a maker or doer of things, not a passive element in a “process” like, say, a chemical compound.) Call them “zombie agents,” if you will, but they break the rules of what form an “infectious agent” might take and perhaps even deform our concept of a “living thing.”

Oh, and by the way, seeing it in the old way, as some kind of “impossible agent”—agent-like in that it could replicate, dead matter in that it did so without denaturing its surroundings the way a toxic substance might, had *delayed progress toward treatment*. A clear characterization of a target is what a concept may do for productive thought. A lot of effort was wasted while under the grip of the notion that such things with contradictory properties could not exist.

In hindsight, a paraconsistent logicians might see in this bit of discovery drama a case study of classical and paraconsistent logical thinking in action. Classical logic, set up for still-born, defined classes actually hindered progress in our understanding of these diseases for a time. It took an investigator open to the possibility that what is there, at the source of the contradiction is real, and as “true” and consequential as anything gets, and that it may be its own entity and not *necessarily* analyzed in pre-conceived terms.[15]

Similarly, a paraconsistent logician approaches the problem of motion. As brought out in Zeno’s paradox, it may best be analyzed as its own irreducible phenomena with its own set of properties that would only lead to paradoxical, fruitless, dead-ends if forced by laws like the LNC to behave

[15] An application of paraconsistent logic to accurate dementia detection in Alzheimer research has also been helpful in compensating for diagnostic noise. See http://www.cadastro.abneuro.org/site/arquivos_cont/58.pdf

itself by not giving off contradictory expressions. Motion = here + here + here + here... so the LNC would have it. There is never a state of being *both* here and not here. But that invites the thought that we *never* get anywhere because the number of in-between states between here and there is mathematically infinite! Hence, motion cannot be accomplished. Nothing has ever moved! How unabsurd is that? (Or absurd?—doesn't matter, since the absurd and nonabsurd have now merged! if you buy the explosive aspect of the LNC.)

A pattern emerges when we look over cases of experienced inconsistency. Anomalies appear during states of transition, in borderline cases, and at points where the concepts we have been using have been vaguer than we might like. Zeno's classic arrow paradox is a case in point. He puzzled over what motion was. His conceptual tools were those developed from observation of static things. Stock still things, dead things, routine things, etc., lend themselves well to sorting into clear stable sortals. Once so classified we have a conceptual framework with and from which to proceed with investigation. Not having a clue how to characterize the target of mystery is a bad place to be in and to be avoided. Enter the LNC with its pronouncements that certainly clear the air... at a cost. But perhaps these pronouncement regarding unacceptable contradiction are most appropriate in emergencies: "it is poisonous or it is not poisonous but certainly not both: decide! or you may die either from hunger or toxicity!"

A similar paraconsistent analysis has been employed dealing with the concept of personhood which looms large in the debate on abortion/infanticide. Is there a point in the development of a person when one *both is and isn't* a person? Vagueness[16] about this concept has resulted in people dying—and not all of them fetuses.

We can't get away from the problem of vagueness. Paraconsistent logic at least counsels a strategy for approaching contradictory things: until you have very good reason to believe they can be domesticated behind the white picket fence of classical logic, that is, if you ever get as far—until then, it may be best to see if you can work with contradictions as what they appear to be—not crazy or explosive, just inconsistent. Pending or permanent.

The trouble with the LNC is that in saying something cannot have inconsistent properties, it forecloses on what reality is permitted to show us.

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[16] Getting clear about vagueness has a long history in philosophy. If Aquinas used to worry about the sustainable number of angels in a tight place, he did so because the received concept of an angel was vague: do angels take up space at all, if so how much? Was it out of the question that an angel might be both present and not present at once... Or Averroes' omnipotence paradox: can God make a rock too heavy for him to lift? If so, he's not omnipotent; if not, he's not omnipotent, hence he is not omnipotent. (That is, if you accept *Ganto's Axe*... Hey, if the LNC is in trouble, this rule shouldn't be a foregone conclusion either. Just maybe, as Pascal and Kierkegaard asserted, "God" *is* a contradiction. They would have said a "true" one, that is to say, a humbling one. Kierkegaard thought the intellect required regular crucifixion to keep it on it toes.)

—Victor Muñoz
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